

# Seven-Year Follow-Up on Lopinavir/ Ritonavir Monotherapy

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Previous studies of lopinavir/ritonavir (LPV/r) monotherapy have shown that over 70% of patients achieved HIV RNA levels <500 copies/mL over a follow-up period of 48 to 96 weeks, but the long-term durability is undetermined. Herein, the authors report 2 patients that started LPV/r monotherapy after virologic failure on an NNRTI-based regimen and have been successfully treated for greater than 7 years. Both patients demonstrated long-term control of viral replication over the course of treatment, although the first patient had 3 viral load blips and

the second had 1 blip under 400 copies/mL. Both patients had increases in CD4+ lymphocyte counts. The first patient from 96 cells/ $\mu$ L to 378 cells/ $\mu$ L and the second patient from 71 cells/ $\mu$ L to 411 cells/ $\mu$ L. To the authors' knowledge, these 2 cases represent the longest experience with LPV/r monotherapy and provide some measure of reassurance about the durability of LPV/r for control of HIV replication.

**Keywords:** HIV; lopinavir/ritonavir; monotherapy

## Introduction

The current US Department of Health and Human Services guidelines for the treatment of HIV-1 infection in adults and adolescents recommend treatment with a combination of at least 3 antiretroviral (ARV) medications.<sup>1</sup> These recommendations are based on clinical trial data, suggesting that triple agent therapy achieves high levels of virologic suppression and CD4 cell improvement.<sup>1</sup> Early attempts to control HIV replication with protease inhibitor (PI) monotherapy were unsuccessful.<sup>2,3</sup> However, studies evaluating monotherapy with the boosted PI lopinavir/ritonavir (LPV/r) have shown that 73% to 89% of patients achieve HIV RNA levels <500 copies/mL over a follow-up period of 48 to 96 weeks.<sup>4,5</sup> Although these data support the efficacy of LPV/r monotherapy, the long-term durability of this regimen is undetermined. Herein, we report 2 patients

successfully maintained on LPV/r monotherapy for greater than 7 years.

## Case Studies

### Case 1

A 66-year-old female experienced virologic failure on abacavir (ABC), lamivudine (3TC), and nevirapine (NVP) and was switched to LPV/r monotherapy in May 2001. She had been on antiretroviral therapy (ART) since March 1993 with previous exposure to zidovudine (ZDV), didanosine (ddI), zalcitabine (ddC), stavudine (d4T), indinavir (IDV), nelfinavir (NFV), and efavirenz (EFV). At the time of switch, the viral load was 6222 copies/mL and the CD4 lymphocyte count was 96 cells/mm<sup>3</sup>. Baseline resistance testing was not available. Plasma HIV RNA dropped below the level of detection 8 weeks after initiation of LPV/r monotherapy. This regimen has been continued more than 7 years during which time period there were 3 viral load blips of 240, 177, and 340 copies/mL at weeks 133, 137, and 172, respectively. The viral load has remained undetectable for the remainder of the follow-up period. The latest CD4 lymphocyte count was 378 cells/mm<sup>3</sup>

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collected January 2009 after 398 weeks of LPV/r monotherapy.

### Case 2

A 38-year-old male experienced virologic failure on EFV and coformulated 3TC and ZDV in June 2001 with a viral load of 42 500 copies/mL and a CD4 count of 71 cells/mm<sup>3</sup>. He had been on ART since July 1997, with previous exposure to d4T, IDV, and delavirdine (DLV). Phenotypic resistance testing obtained in June 2001 showed resistance to all reverse transcriptase inhibitors except DLV and sensitivity to the PI class. The regimen was changed to LPV/r and DLV, but shortly after commencing this regimen a severe rash developed. Delavirdine was stopped and LPV/r was continued as monotherapy. Plasma HIV RNA dropped below the level of detection 6 weeks after the switch and LPV/r monotherapy has been continued unchanged for more than 7 years of follow-up. During this time period, a viral load blip of 65 copies/mL was noted on 1 occasion at week 280. The CD4 lymphocyte count in May 2008 was 411 cells/mm<sup>3</sup> after 354 weeks of LPV/r monotherapy.

### Discussion

Several large studies have supported the potential usefulness of LPV/r monotherapy for management of HIV infection. Despite these data, there is concern about the long-term durability of virologic response with this regimen. To our knowledge, these 2 cases represent the longest experience available

with LPV/r monotherapy and provide some measure of reassurance about the durability of LPV/r for control of HIV replication.

There is a need for additional large, randomized, long-term trials of boosted PI monotherapy to better define the role of this strategy in the optimal management of HIV infection.

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